Chapter 1
Introduction

1-1. Purpose

This manual provides guidance for the planning and structural design and analysis of intake structures and other outlet works features used on U.S. Army Corps of Engineers projects for the purpose of flood control, water supply, water quality and temperature control, recreation, or hydropower.

1-2. Applicability

This manual applies to all HQUSACE elements and USACE commands having responsibilities for the design of civil works projects.

1-3. Distribution

This publication is approved for public release; distribution is unlimited.

1-4. References

Required and related publications are listed in Appendix A.

1-5. Scope

a. Overview. This manual presents guidance for the planning and design of outlet works structures, with special emphasis on intake towers. Other outlet works structures covered include tunnels, cut-and-cover conduits, access bridges, gate structures, and approach and discharge channel structures. Appurtenant features covered include trashracks, gates, valves, and mechanical and electrical operating equipment. Chapter 2 presents general planning and design information; Chapters 3 and 4 provide structural and seismic design guidance; Chapter 5 describes trashracks, bulkheads, gates, valves, and operating equipment; and Chapter 6 covers access bridge design requirements and describes special detailing considerations. Appendices B through E cover the seismic design and evaluation of intake towers.

b. Guidance limitation.

(1) The procedures in this manual are intended for outlet works structures founded on rock. Outlet works structures should not be founded on soil unless piling is provided to support the structure in the event the soil supporting the structure is eroded. The design of pile-supported structures is covered in EM 1110-2-2906.

(2) Intake structures contained within or attached to concrete gravity dams are not addressed in this manual. Details of intake structures that are integral with a concrete gravity dam can be found in the U.S. Bureau of Reclamation handbook, “Design of Gravity Dams” (U.S. Bureau of Reclamation 1976).